Kansas City Regional MAP Center

Constructed Response Item Template

Theme: Balance Scale **Title of Theme/Module:** Measurement

Stimulus Material: Picture of balance scale and table

Writer(s): Terry Beasley

Grade Range: 4 **Subject Area:** Mathematics

Standards Assessed:

Performance (process)		**Knowledge (content)**	
Goal 3	**Standard** 5	**Content** MA	**Standard** 1
Goal 3	**Standard** 3		

Item: 1. How many grams does the object weigh? Using the space below, determine the weight of the glue bottle. Include an explanation of how you calculated your answer using numerals and/or pictures.

Description of a top score response:

Fourth graders answering the item will need to demonstrate the ability to identify the correct weight of the gram blocks. The student will need to demonstrate the ability to use mathematical operations (addition, multiplication, subtraction, or any combination) in written form to correctly calculate the total weight.

10 + 5 + 20 + 5 = 40 grams 5 x 2 = 10 + 10 + 20 = 40 grams

Students may use other logical mathematical operations.

Scoring Guide:

2 Points	The response provides a demonstration of computation with a written response and a correct total weight.
1 Point	The response provides a demonstration of computation with an incorrect total weight OR provides a correct total weight without a demonstration of computation.
0 Points	The response fails to offer a demonstration of computation OR a correct total weight.

Item: 2. Using the weight table, demonstrate a different combination of weights that Emily could have used to measure the mass of the glue bottle. Draw the gram weights on the scale. Explain your work using numerals to show the total weight.

Description of top score response:

Fourth graders answering the item will need to demonstrate the ability to use mathematical reasoning to create a combination of weights equal to 40 grams. The students will need to demonstrate the ability to use mathematical operations in written form to calculate the total weight.

20 + 10 + 5 + 1 + 1 + 1 + 1 + 1 = 40 grams

20 + 20 = 40 grams

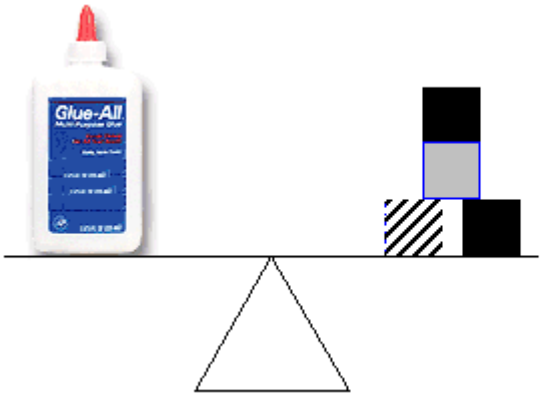
Any other combinations of weight that are equal to 40 grams are acceptable.

Scoring Guide:

3 Points	The response provides a demonstration of computation with a correct total weight, accompanied with a correct weight block illustration on the balance scale.
2 Points	The response provides a demonstration of computation, accompanied with a corresponding weight block illustration. The computation or the illustration may not correspond with the correct weight.
1 Point	The response provides only a demonstration of computation or an illustration of the weight blocks.
0 Points	The response fails to offer a demonstration of computation OR an illustration.

Student Prompt

Emily is using a balance scale to weigh her bottle of glue. She has used a variety of gram weights. Use the illustration and the table below to answer the following questions.



Weight Table

	1 gram
	5 grams
	10 grams
	20grams

1. How many grams does the object weigh? Using the space below, determine the weight of the glue bottle. Include an explanation of how you calculated your answer using numerals and/or pictures.

2. Using the weight table, demonstrate a different combination of weights that Emily could have used to measure the mass of the glue bottle. Draw the gram weights on the scale. Explain your work using numerals to show the total weight.